



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,059	08/06/2003	David Garcia	SJO920000053US2	1314

28722 7590 01/07/2004

BRACEWELL & PATTERSON, L.L.P.
P.O. BOX 969
AUSTIN, TX 78767-0969

EXAMINER

HASSANZADEH, PARVIZ

ART UNIT PAPER NUMBER

1763

DATE MAILED: 01/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/635,059

Applicant(s)

GARCIA ET AL.

Examiner

Parviz Hassanzadeh

Art Unit

1763



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8/03. 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art (Figs. 1, 2 and page 3) in view of McNeil et al (US Patent No. 4,877,479).

Admitted prior art (Figs. 1, 2) teach a method of etching a specimen 11 using a device 13 for, the method comprising the steps of:

Providing an ion beam gun 19 (*providing an ion beam gun for emitting an ion beam toward a specimen*) and a grid 15 having a plurality of through holes 21, voids 22, and a center 23 (*providing an ion grid mounted to the gun having a surface with a plurality of holes extending therethrough for filtering the ion beam emitted by the gun*)

Supporting the specimen 11 on a table 17, wherein the table 17 is rotatable (*supporting the specimen 11 adjacent to the gun and rotating one of the specimen and the gun relative to the other*).

The admitted prior art fails to teach blocking at least some of the holes in the grid such that the ion beam emitted by the gun is prevented from passing therethrough for improving an etch depth uniformity of the specimen.

McNeil et al disclose a mechanism for selectively processing a portion area of a substrate. For example, a rotating mask (Fig. 2) is used to block a selected portion of the object to be processed (column 3, lines 8-39).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement the making mechanism as taught by McNeil et al in the apparatus of the admitted prior art in order to selectively block a portion of the ion beam such that a selected region of the substrate is blocked from direct impact with the ion beams.

Further regarding claims 2-4: the masking device as shown in Fig. 2 of the admitted prior art is a flat plate and the masking area is non-symmetric. The selection of the shape and the surface area of the masking device is considered a parameter depending on the type of the process to be performed and it would have been obvious to one of ordinary skill in the art to design the shape of the masking device in accord with the type of the process such deposition, doping or etching to be performed.

Further regarding claim 5: as shown in Fig. 1 of the admitted prior art, table 17 is rotated while the ion beam gun 19 is stationary.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art (Figs. 1, 2 and page 3) in view of Watanabe (JP 2000-11905-A).

Admitted prior art (Figs. 1, 2) teach a method of etching a specimen 11 using a device 13 for, the method comprising the steps of:

Providing an ion beam gun 19 (*providing an ion beam gun for emitting an ion beam toward a specimen*) and a grid 15 having a plurality of through holes 21, voids 22, and a center 23 (*providing an ion grid mounted to the gun having a surface with a plurality of holes extending therethrough for filtering the ion beam emitted by the gun*)

Supporting the specimen 11 on a table 17, wherein the table 17 is rotatable (*supporting the specimen 11 adjacent to the gun and rotating one of the specimen and the gun relative to the other*).

The admitted prior art fails to teach blocking at least some of the holes in the grid such that the ion beam emitted by the gun is prevented from passing therethrough for improving an etch depth uniformity of the specimen.

Watanabe disclose a mechanism (Fig. 1) for controlling the shape of the ion beam by inserting a doughnut-shaped plate 23 between grids 21, 22 and ion gun 14 wherein the shape of the ion beam depends on the shape of the hole 25 of the ion plate 23 (abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement the shaping plate 23 as taught by Watanabe in the apparatus of the admitted prior art in order to control the shape of the ion beam.

Further regarding claims 2-4: The selection of the shape and the surface area of the masking device is considered a parameter depending on the type of the process to be performed and it would have been obvious to one of ordinary skill in the art to design the shape of the masking device in accord with the type of the process such deposition, doping or etching to be performed.

Further regarding claim 5: as shown in Fig. 1 of the admitted prior art, table 17 is rotated while the ion beam gun 19 is stationary.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Watanabe (JP 10-317138-A) teach an ion beam apparatus including an ion-beam shaping plate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parviz Hassanzadeh whose telephone number is (571)272-1435. The examiner can normally be reached on Tuesday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703)308-1633. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

P. Hassanzadeh
Parviz Hassanzadeh
Primary Examiner
Art Unit 1763

December 29, 2003